ABSTRACT

Association of increased carotid intima-media thickness with the extent of coronary artery disease

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Key words: coronary artery disease, carotid intima media thickness, myocardial infarction, stress echo, atherosclerosis, acute coronary syndrome, high sensitivity c reactive protein

Background :

During the past 30 years, coronary artery disease (CAD)

rates have doubled in both rural and urban India.It is imperative to shift thefocus to disease prevention rather than palliation. Prevention requires early identification of individuals at risk of developing cardiovascular disease but still clinically asymptomatic, so that intensive preventive measures may be instituted to arrest the progression of disease.

Cardiovascular disease is the end result of the atherosclerotic process. The various diagnostic modalities used currently (exercise-electrocardiography, stress echocardiography, thallium scanning, coronary angiography) can detect atherosclerotic disease only when it becomes well advanced and occlusive. Similarly, various risk-factor assessment scores can predict the risk of future cardiovascular events, but fail to identify the ongoing

atherosclerotic process. Carotid intima-media thickness (IMT) measurement is a promising tool for detecting atherosclerosis in its pre-occlusive phase.The raised carotid IMT is an excellent predictor of therisk of future cardiovascular events, and it can also detect Coronary artery disease is major cause of mortality and morbidity all over the world. Treadmill testing and transthoracic echocardiography can have limited specificity and sensitivity in diagnosing CAD.

Doppler Ultrasound machines facilitates comprehensive analysis of the intima-media thickness (IMT) in the peripheral vessels--carotid arteries . Thickening of the intima -media is commonly recognized as the initial stage in the development of atherosclerosis.

Aims and objectives:

To determine whether carotid intima-media thickness is associated with coronary artery disease and cardiovascular risk factors and also to determine the relation between intima-media thickness (IMT) in carotid arteries and the extent of coronary artery disease (CAD)

Material and method :

This study is to be conducted among 30 CAD patients proved on angiography attending the Department of Medicine & Department of Cardiology, Govt. Rajaji Hospital, Madurai. CAD.

The carotid intima – media thickness was measured using high-resolution B-mode ultrasonography in 30 patients. Carotid intima-media thickness was measured at far and near walls of common carotid artery. High -Sensitivity C reactive Protein which is a marker of inflammation was estimated for all the 30 patients.It was conducted for a period of 4 months.

Results:

The maximum carotidintima-media thickness was significantly higher in the coronary disease with tripple vessel disease.There was a significant association between high sensitivity C-Reactive protein and maximum intima –media thickness values. These results indicate that raised values of carotid intima-media thickness are significantly associated with the presence of coronary artery disease and severity of the disease. The high sensitivity CRP also showed positive correlation with the severity of CAD.By angiography ,15 patients had single vessel involvement. 12 patients had double vessel involvement and 3 patients had three vessel involvement.

In the study population 13.3% were below 45 years, 36.7% between 46-55 years, 30 % were between 56-65 years and 20% were 66 years and above70% of the patients were male and only 30 % were female.

On coronary angiography, One vessel CAD was diagnosed in 15(50%), two vessel CAD in 12 (40.0%), and three vessel CAD in 3 (10%) patients.

A significant, nearly linear correlation between IMT and advancing CAD (p , 0.001) was found.

Conclusion:

Aim of this study is toshow that the carotid artery IMT was higher in patients with angiographically confirmed CAD with tripple vessel disease than in patients with single or double vessel disease. The median value of hs CRP of 2.9 is indicative of the underlying chronic inflammation for the clinical course of CAD in patients with single vessel disease. The IMT can be used as a factor for preliminary identification of patients with or without CAD and thus , CIMT measurement may trigger the preventive steps against atherosclerosis

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